

## Treatment of Epilepsy in the Elderly

Ilo E. Leppik, M.D.

MINCEP Epilepsy Care, Department of Neurology and Pharmacy, University of Minnesota, Minneapolis, Minnesota

*The diagnosis and treatment of seizures and epilepsy in the elderly will become a greater concern because the number of elderly is rapidly increasing, the complexities of diagnosis are more challenging, and drug therapy is affected by interactions and altered pharmacokinetics.*

The elderly are the most rapidly growing segment of the population, and onset of epilepsy is higher in this age group than in any other. The incidence of a first seizure is 52 to 59 per 100,000 in persons 40 to 59 years of age, but rises to 127 per 100,000 in those 60 and over (1). Among persons 65 years and older, the active epilepsy prevalence rate is approximately 1.5%, about twice the rate of younger adults. In 1995, approximately 2.3 million residents of the United States had been diagnosed with epilepsy. Almost one and one-half million were adults aged 15 to 64 years, 300,000 were children aged 14 or younger, and 550,000 were over age 65. Approximately 181,000 persons developed epilepsy in 1995, and approximately 68,000 of these were over age 65 (2).

As the elderly population continues to grow steadily, increasing numbers of them are likely to require accurate diagnosis and effective treatment of seizures. The above data is based mostly on a community-based population. The prevalence of epilepsy and antiepileptic drug (AED) use is much higher in nursing homes. In a review of 45,405 people 65 years or older living throughout the country in long-term care facilities serviced by Pharmacy Corporation of America, at least one AED was taken by 4,573 (10.1%) of the residents (3). Later studies have confirmed that the prevalence of AED

use in the nursing home population varies between 10 to 11% (4,5). Approximately 1.5 million elderly people reside in nursing homes; thus, as many as 150,000 nursing home elderly may be taking AEDs. Data regarding AED use in elderly outpatients is not available.

Phenytoin is the most commonly used AED in nursing homes. In a study of 21,551 nursing home residents in 24 states on one day in the spring of 1995, 10.5% had an AED order (4). Of these, 9.2% had a seizure or epilepsy indication recorded. Of the AEDs, 6.2% were using phenytoin, 1.8% carbamazepine, 0.9% valproic acid, 1.7% phenobarbital, and all other drugs combined, 1.2%.

The diagnosis of epilepsy is generally made only after a person has had two or more seizures. However, many physicians may begin treatment with AEDs after a single seizure in elderly patients, because the risks of a second seizure are perceived to be high. Treatment in the elderly carries more risks than in younger persons because the elderly may experience more side effects, have a greater risk for drug interactions, and be less able to afford the costs of medications. However, both the benefits and risks of treatment may be greater in the elderly.

Assessment of AED treatment efficacy and toxicity in elderly patients is challenging because seizures are sometimes difficult to observe, because signs and symptoms of toxicity can be attributed to other causes (e.g., Alzheimer's disease, stroke, etc.) or to co-medications, and because the patient may not be able to accurately self-report problems. These circumstances require the physician to devote extra attention to the evaluation of the elderly patients treated with AEDs.

In addition to their use in epilepsy, AEDs are prescribed for a variety of other disorders, including neuralgias, aggressive behavior disorders, essential tremor, and restless legs syndrome—all conditions prevalent in the elderly. Treatment of older patients with AEDs, as with many other medications, is complicated by increased sensitivity to drug effects, narrow therapeutic ranges, complex pharmacokinetics, and the increased likelihood of drug interactions because of multiple drug therapy. When clinicians prescribe for the elderly, they must also consider the likelihood of concomitant disorders and the high individual variability found in this population. As a cause of adverse reactions among the elderly, AEDs rank fifth among all drug categories (3).

Nonetheless, the frequent use of AEDs by nursing home residents and the growing number of elderly in the general population suggest that hundreds of thousands of older individuals are being treated with these medications. Thus, it be-

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Address correspondence to: Dr. I.E. Leppik, MINCEP Epilepsy Care, 5775 Wayzata Blvd., Ste. 200, Minneapolis, MN 55416; E-mail: mincepmail@mincep.com

comes increasingly important for physicians who care for the elderly to understand the clinical pharmacology of AEDs.

At the present time, there is limited data regarding the clinical use of antiepileptic drugs in the elderly. The paucity of information makes it very difficult to recommend specific AEDs with any confidence that the outcomes will be optimal. Nevertheless, decisions need to be made, and indeed are being made. Many of the recommendations will be modified as new knowledge is obtained. At the present time, "comfort level" with some drugs may play a larger role than actual experience or data. More studies need to be done, especially with the most commonly used AED, phenytoin. Evidence based studies should include all of the drugs currently used.

## References

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